

REMARKS

Claims 1, 7, 22, 26, 27, 29, 30, 32 and 33 are amended. Claims 1-12 and 22-35, as amended, remain in the application. No new matter is added by the amendments to the claims.

The Rejections:

In the Office Action dated January 23, 2007, the Examiner rejected Claims 26-28 and 30 under 35 U.S.C. 103(a) as being unpatentable over JP-11267560 in view of JP 11-114873, Bihn (4,712,739) and Gengenbach et al (US 2,930,350).

As to Claims 26-27, the Examiner stated that JP'560 discloses (see English translated Abstract, and Figs 2 and 11) a painting apparatus comprising an arm for a painting robot; an outer end (6); a paint canister (97) mounted inside the housing (see paragraph 51 and Fig 11); a wrist (7) having one end (7a) attached to the outer end of the arm; and a wrist (7b) having an opposite end for mounting a paint applicator (8). JP'560 lacks teaching structural components of the wrist as well as the arm having a housing formed of a non-conductive material. The Examiner commented, however, JP873 discloses (see English translated Abstract and detailed description and Fig 3) structural components (items 50 and insulating washers 31 and 32, see paragraph) of the wrist (wrist flange 20) formed of a non-conductive material, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include structural components of the wrist formed of a non-conductive material in JP'560 to electrically insulate the robot with less load.

The Examiner stated that Bihn teaches an electrostatic or a non-electrostatic painting apparatus mounted on an industrial robot (see column 2; lines 31-35). According to the Examiner, one in the art would include an electrostatic spray device in JP'560 device to enhance atomization of the painting solution. The Examiner stated that Gengenbach et al discloses (see Figs 1 and 4; column 2, lines 55-63) in an electrostatic spray arrangement a housing (7) of the outer arm (see Fig 4) formed of a non-conductive material, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an outer arm being formed of a non-conductive material in JP'560 to prevent electric hazards or to properly insulate the electric spray installation.

With respect to Claim 28, the Examiner stated that JP'560 discloses a paint transfer line continuously connecting (see Fig 8) the color changer (11) to an interior of the paint canister for transferring paint from the color changer (11) to the interior of the paint canister (29, 97) and capable of providing electrostatic isolating of the paint canister from the color changer during use of the paint canister for painting.

As to Claim 30, the Examiner stated that that in Fig 11, the color changer is mounted outside the arm housing.

The Examiner rejected Claim 31 under 35 U.S.C. 103(a) as being unpatentable over JP-11267560A in view of Bihn and Gengenbach and JP 11-114873, and further in view of Klein et al (US 2001/0013315). The Examiner commented that JP'560 lacks teaching a pig removably inserted in the paint transfer line and being slidably moveable in the paint transfer line. The Examiner stated that Klein et al discloses (see Fig. 1 and paragraphs 32 and 37) a pig (32) removably inserted in the paint transfer line and being slidably moveable in the paint transfer line, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a pig movable as claimed in JP'560 to introduce only the quantity of paint which is required overall as taught by Klein et al (see paragraph 9).

Applicants' Response:

Applicants appreciate the allowance of Claims 1-12, 22-25 and 32-35.

The Examiner objected to Claims 1-12, 22-25 and 32-35 because of the following informalities: The use of "adapted to" or "adapted for" languages is noticed in the already allowed claim 1, line 2 and claims 22, line 4 and claim 32, line 5. The Examiner stated that it has been held that the recitation that an element that is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform, and does not constitute a limitation in any patentable sense.

The Examiner also stated that for claim language consistency and preventing 112 2nd issue, the following corrections are also recommended:

Claim 1, line 2, the phrase "said arm" be replaced with "said outer arm";

Claim 22, line 2, the phrase "said arm" be replaced with "said outer arm"; and

Claim 32, line 3, the phrase "said arm" be replaced with "said outer arm".

Applicants amended Claims 1, 22 and 32 as suggested by the Examiner.

Applicants amended Claim 26 to recite that the painting apparatus comprises:

an arm for a painting robot, said arm having a first housing formed of a non-conductive material and an outer end; and
a wrist having one end attached to said outer end of said arm, said wrist having a second housing being a structural component thereof and formed of a non-conductive material and said wrist having an opposite end for mounting a paint applicator.

The Examiner rejected Claims 26-28 and 30 under 35 U.S.C. 103(a) as being unpatentable over JP-11267560 in view of JP 11-114873, Bihn (4,712,739) and Gengenbach et al (US 2,930,350). The Examiner stated that JP'560 lacks teaching structural components of the wrist as well as the arm having a housing formed of a non-conductive material. The Examiner commented, however, that JP'873 discloses (see English translated Abstract and detailed description and Fig 3) structural components (items 50 and insulating washers 31 and 32, see paragraph) of the wrist (wrist flange 20) formed of a non-conductive material, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include structural components of the wrist formed of a non-conductive material in JP'560 to electrically insulate the robot with less load. The Examiner stated that Gengenbach et al discloses (see Figs 1 and 4; column 2, lines 55-63) in an electrostatic spray arrangement a housing (7) of the outer arm (see Fig 4) formed of a non-conductive material, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an outer arm being formed of a non-conductive material in JP'560 to prevent electric hazards or to properly insulate the electric spray installation.

As confirmed by the Examiner, JP'560 does not show an arm housing or a wrist housing formed of a non-conductive material. JP'873 shows internal insulating washers 31 and 32 and an electric insulating coating layer 50 of a wrist flange, but does not show or suggest a wrist housing formed of a non-conductive material. Gengenbach shows an insulating arm 7 terminated at a spraying disk 15 by a cap formed of conductive material through which a nozzle 31 extends. Gengenbach does not show or suggest a wrist housing formed of a non-conductive material.

Thus, the combination of JP'560, JP'873 and Gengenbach teaches one of ordinary skill in the art to form an arm housing of non-conductive material and use a wrist flange with insulating

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washers to attach to a conductive wrist housing. Therefore, the combination of references cited by the Examiner does not render the subject matter of amended Claims 26-31 obvious to one of ordinary skill in the art.

In view of the amendments to the claims and the above arguments, Applicants believe that the claims of record now define patentable subject matter over the art of record. Accordingly, an early Notice of Allowance is respectfully requested.